

<110> LG CHEM, LTD.

<120> Poly(3-hydroxyalkanoate) Block Copolymer Having Shape Memory Effect

<130> LC05PCT042

<150> KR 10-2005-0059907
<151> 2005-07-04

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<170> KopatentIn 1.71

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<212> DNA
<213> Artificial Sequence

<220>
<223> Choi3 (PCR Primer)

<400> 1
ccgccstgsa tcaagtac 18

<210> 2
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Choi4 (PCR Primer)

<400> 2
gytsgtgsgy tcyycgttcc 20

<210> 3
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> HJ-PHB-N (PCR Primer)

<400> 3
caccatgctg agttgcgctc tagc 24

<210> 4
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> HJ-PHB-C (PCR Primer)

<400> 4

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27

<210> 5
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<212> DNA
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<220>
<223> SCL-1 (PCR Primer)

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20

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<223> SCL-2 (PCR Primer)

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21

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<211> 19
<212> DNA
<213> Artificial Sequence

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<223> SCL-3 (PCR Primer)

<400> 7
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19

<210> 8
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<212> DNA
<213> Artificial Sequence

<220>
<223> SD-BA-N (PCR Primer)

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47

<210> 9
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<212> DNA
<213> Artificial Sequence

<220>
<223> BA-C (PCR Primer)

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<400> 9
cccactagtt cagcgctcga tggccagc 28

<210> 10
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> SD-phbC-N (PCR Primer)

<400> 10
gggcatatga cccagaagaa caacagcg 28

<210> 11
<211> 39
<212> DNA
<213> Artificial Sequence

<220>
<223> phbC-C (PCR Primer)

<400> 11
cccactagtt cadmscttya crtaacgtcc tggcgcygc 39

<210> 12
<211> 756
<212> DNA
<213> Pseudomonas sp. HJ-2

<220>
<221> variation
<222> (482)
<223> n=A, C, G or T

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ccctactcca gccgcaaggc ttcctggatt gccacgcaac tcgaggcggg ctttcacttc 180
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atcaacatct cctcaatcaa tggccagcga ggccagttcg ggcagaccaa ctactccgcg 480
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gtgaccgtca atacggtttc ccctggctac atcaagaccg acatgaccgc ggcgattcgc 600
ccggacatcc tcgaagacat gattactggc attcccgtgg gccgtctcgg ccagcccagag 660

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gagatcgctt cgatcgtggc ctggctggcc tccgatcagt ctgcctatgc caccggcgcc 720
gacttctcgg tgaatggcgg catgaacatg cagtga 756

<210> 13
<211> 1179
<212> DNA
<213> Pseudomonas sp. HJ-2

<220>
<221> variation
<222> (207)
<223> n=A, C, G or T

<220>
<221> variation
<222> (209)
<223> n=A, C, G or T

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accgctctgg atagcagtca ggtggatgaa gtgatactcg gccacgtact caccgccggt 180
gctggcagaa taccgctcgc caggcancng gtcacgcgcg gcctgccaca cgccgtaccg 240
gcgatgaccc tgaacaaggt ctgtggctcc ggcctgaaag ccctgcacct gggcgcccag 300
gccatccgct gtggcgatgc cgaggtgggtg attgccggtg gcatggagaa catgagcctg 360
tcgtcctatg tcctgcccac ggcccgcacc ggcctgcgca tgggccacgc gcagctggtc 420
gacagcatga tcgtcgacgg cctgtgggac gccttcaacg actaccacat ggggatcact 480
gccgagaacc tggtagacaa gtacggcatc agccgcgaag cccaggacga attcgccgcc 540
gcctcgcagc agaaagccgt ggccgccatc gagaccggtc gcttccgcga cgagatcgtc 600
ccggtgagca ttccgcagcg caagggcgag gcgctgagct tcgacaccga cgaacagcca 660
cgcgccggca ccaccgccga gtcgctgggc aagctgaaac cggccttcaa gaacgacggc 720
agcgttactg ccggcaacgc ttccagtctc aacgacggcg ccgccgcggt actgctgatg 780
agtgcggcaa aggccgcagc gcttgggtctg ccagtgtggt cgaagatcgc cgcctacgcc 840
aatgccggcg tcgaccgggc gatcatgggt atcggaccgg tgtcggccac ccgcagttgc 900
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agcctgctgc atgaaatgct caggcgcgac gcgaaaaaag gcctcgctac cctgtgtatc 1140
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<210> 14
 <211> 1701
 <212> DNA
 <213> Pseudomonas sp. HJ-2

<400> 14
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 caaagccagt ggttcgacgt acctgtcgag gcgttggagc aactgcaggc ggactaccaa 180
 caacagtggg ccgaacttgg ccagcaattg ctgagctgcc agccgttcgc attcagcgat 240
 cgtcgcttcg ccagtggcaa ctggagcgaa ccgctgttcg gttccctggc tgccttctac 300
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 ccccgccagc gcttgcgтта cttgatcgag caagcgattg ccgcaagcgc cccaagtaac 420
 tttctgctga gcaaccctga tgccctgcaa cgcttagtgg aaaccaggc cgccagccta 480
 ctaagtggcc tgttgcatct tgccagtgc ctgcaggcag gcaagttgcg ccaatgtgac 540
 ttgggcgatt tcgaagtcgg cgtgaatctg gccaccaccc ctggtgccgt ggtactggaa 600
 acccctctgt tccagctgat ccagtattcg ccgctcagcg aaacgcaata ccagcggccg 660
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 aagttggatc tgcgggccat agacgcacca gcctacatct tgggaacca tgacgaccac 1380
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 cagcattccg gcagttggtg gggtgactgg ttcgcctggt tgaccggcta tgccggccca 1620
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ggacgttatg tgaagctatg a

1701

<210> 15
 <211> 3933
 <212> DNA
 <213> Pseudomonas sp. HJ-2

<220>
 <221> variation
 <222> (608)
 <223> n=A, C, G or T

<220>
 <221> variation
 <222> (1134)
 <223> n=A, C, G or T

<220>
 <221> variation
 <222> (1136)
 <223> n=A, C, G or T

<400> 15
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 ttcacatccg caaagcgcca gagacttgcc cgctgttcca aggtcttaat taacgaggaa 120
 tggттаатgg gtactgcgag caatgcggca cgtatagctc tggtcaccgg tggtatgggc 180
 ggtatcggta cggcgatcag ccagcgcctg catcgggatg gcttcaccgt ggtggtgggc 240
 tgtaatccct actccagccg caaggcttcc tggattgcca cgcaactcga ggcgggcttt 300
 cacttccact gcatcgactg cgacatcacc gactgggata gcacccgcca ggccttcgac 360
 atggtgcacg agactgtcgg cccgatcgat gtattgggtca acaatgccgg catcacccgc 420
 gacggcactt tccgcaagat gtccccggaa aactggaagg cggtgatcga taccaatctc 480
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 cgcgatcatca acatctcctc aatcaatggc cagcgaggcc agttcgggca gaccaactac 600
 tccgcggnca aggctggcat tcatggcttc agcatggcct tggcccgcga ggtgagtggc 660
 aagggcgtga ccgtcaatac ggtttcccct ggctacatca agaccgacat gaccgcggcg 720
 attcgcccgg acatcctcga agacatgatt actggcattc ccgtgggccc tctcggccag 780
 cccgaggaga tcgcctcgat cgtggcctgg ctggcctccg atcagtctgc ctatgccacc 840
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 gctcagccat gacatgaggt gttccagatg atcgaagtcg ttatcgtcgc cgccactcgc 960
 accgccatcg gcgctttcca ggggagcctg gccggcactc ccgccgttga actgggcgcc 1020
 acggtgatcc gccgcctgct cgaacagacc gctctggata gcagtcaggt ggatgaagtg 1080
 atactcggcc acgtactcac cgccggtgct ggcagaatac cgctcgccag gcanenggtc 1140

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gccggtggca	tggagaacat	gagcctgtcg	tcctatgtcc	tgcccaaggc	ccgcaccggc	1320
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taccagcggc	cgatattcat	ggtcccggcc	tggatcaaca	agtactacat	ccttgacctc	2940
gggcccga	actctcta	ccgtcatcta	ctggagcgag	gcatcaagt	ttttctgatg	3000
tcctggcgca	acttcactca	ggaacaggcc	gacatcacct	gggagcagat	catccaggac	3060

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ggagtgatca gcgccctgcg cactacccgg gccatcagtg gtgagcgcca cctgaactgt 3120
 ttgggttttct gcatcggcgg caccatgctg agttgcgctc tagcgggtgct ggcagcgcggt 3180
 ggcgaccagg acattgccag cctgagtcta ttcgccactt ttcttgacta ccttgatacc 3240
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 gaacatgcgc caggacgtta tgtgaagcta tga 3933

<210> 16
 <211> 251
 <212> PRT
 <213> Pseudomonas sp. HJ-2

<220>
 <221> variation
 <222> (161)
 <223> Xaa = Asp, Ala, Gly or Val

<400> 16
 Met Gly Thr Ala Ser Asn Ala Ala Arg Ile Ala Leu Val Thr Gly Gly
 1 5 10 15
 Met Gly Gly Ile Gly Thr Ala Ile Ser Gln Arg Leu His Arg Asp Gly
 20 25 30
 Phe Thr Val Val Val Gly Cys Asn Pro Tyr Ser Ser Arg Lys Ala Ser
 35 40 45
 Trp Ile Ala Thr Gln Leu Glu Ala Gly Phe His Phe His Cys Ile Asp
 50 55 60
 Cys Asp Ile Thr Asp Trp Asp Ser Thr Arg Gln Ala Phe Asp Met Val
 65 70 75 80
 His Glu Thr Val Gly Pro Ile Asp Val Leu Val Asn Asn Ala Gly Ile
 85 90 95
 Thr Arg Asp Gly Thr Phe Arg Lys Met Ser Pro Glu Asn Trp Lys Ala
 100 105 110

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Val Ile Asp Thr Asn Leu Thr Gly Leu Phe Asn Thr Thr Lys Gln Val
 115 120 125
 Ile Glu Gly Met Leu Ala Lys Gly Trp Gly Arg Val Ile Asn Ile Ser
 130 135 140
 Ser Ile Asn Gly Gln Arg Gly Gln Phe Gly Gln Thr Asn Tyr Ser Ala
 145 150 155 160
 Xaa Lys Ala Gly Ile His Gly Phe Ser Met Ala Leu Ala Arg Glu Val
 165 170 175
 Ser Gly Lys Gly Val Thr Val Asn Thr Val Ser Pro Gly Tyr Ile Lys
 180 185 190
 Thr Asp Met Thr Ala Ala Ile Arg Pro Asp Ile Leu Glu Asp Met Ile
 195 200 205
 Thr Gly Ile Pro Val Gly Arg Leu Gly Gln Pro Glu Glu Ile Ala Ser
 210 215 220
 Ile Val Ala Trp Leu Ala Ser Asp Gln Ser Ala Tyr Ala Thr Gly Ala
 225 230 235 240
 Asp Phe Ser Val Asn Gly Gly Met Asn Met Gln
 245 250

<210> 17
 <211> 392
 <212> PRT
 <213> Pseudomonas sp. HJ-2

<220>
 <221> variation
 <222> (69)
 <223> Xaa = Glu or Asp

<220>
 <221> variation
 <222> (70)
 <223> Xaa = Gln, Pro, Arg or Leu

<400> 17
 Met Ile Glu Val Val Ile Val Ala Ala Thr Arg Thr Ala Ile Gly Ala
 1 5 10 15
 Phe Gln Gly Ser Leu Ala Gly Thr Pro Ala Val Glu Leu Gly Ala Thr
 20 25 30
 Val Ile Arg Arg Leu Leu Glu Gln Thr Ala Leu Asp Ser Ser Gln Val
 35 40 45
 Asp Glu Val Ile Leu Gly His Val Leu Thr Ala Gly Ala Gly Arg Ile
 50 55 60
 Pro Leu Ala Arg Xaa Xaa Val Ile Ala Gly Leu Pro His Ala Val Pro
 65 70 75 80
 Ala Met Thr Leu Asn Lys Val Cys Gly Ser Gly Leu Lys Ala Leu His
 85 90 95

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Leu Gly Ala Gln Ala Ile Arg Cys Gly Asp Ala Glu Val Val Ile Ala
 100 105 110
 Gly Gly Met Glu Asn Met Ser Leu Ser Ser Tyr Val Leu Pro Lys Ala
 115 120 125
 Arg Thr Gly Leu Arg Met Gly His Ala Gln Leu Val Asp Ser Met Ile
 130 135 140
 Val Asp Gly Leu Trp Asp Ala Phe Asn Asp Tyr His Met Gly Ile Thr
 145 150 155 160
 Ala Glu Asn Leu Val Asp Lys Tyr Gly Ile Ser Arg Glu Ala Gln Asp
 165 170 175
 Glu Phe Ala Ala Ala Ser Gln Gln Lys Ala Val Ala Ala Ile Glu Thr
 180 185 190
 Gly Arg Phe Arg Asp Glu Ile Val Pro Val Ser Ile Pro Gln Arg Lys
 195 200 205
 Gly Glu Ala Leu Ser Phe Asp Thr Asp Glu Gln Pro Arg Ala Gly Thr
 210 215 220
 Thr Ala Glu Ser Leu Gly Lys Leu Lys Pro Ala Phe Lys Asn Asp Gly
 225 230 235 240
 Ser Val Thr Ala Gly Asn Ala Ser Ser Leu Asn Asp Gly Ala Ala Ala
 245 250 255
 Val Leu Leu Met Ser Ala Ala Lys Ala Ala Ala Leu Gly Leu Pro Val
 260 265 270
 Leu Ala Lys Ile Ala Ala Tyr Ala Asn Ala Gly Val Asp Pro Ala Ile
 275 280 285
 Met Gly Ile Gly Pro Val Ser Ala Thr Arg Ser Cys Leu Glu Lys Ala
 290 295 300
 Gly Trp Ser Leu Ala Glu Leu Asp Leu Ile Glu Ala Asn Glu Ala Phe
 305 310 315 320
 Ala Ala Gln Ala Leu Ala Val Gly Gln Glu Leu Gly Trp Asp Ala Gly
 325 330 335
 Arg Val Asn Val Asn Gly Gly Ala Ile Ala Leu Gly His Pro Ile Gly
 340 345 350
 Ala Ser Gly Cys Arg Val Leu Val Ser Leu Leu His Glu Met Leu Arg
 355 360 365
 Arg Asp Ala Lys Lys Gly Leu Ala Thr Leu Cys Ile Gly Gly Gly Gln
 370 375 380
 Gly Val Ala Leu Ala Ile Glu Arg
 385 390

<210> 18
 <211> 566
 <212> PRT
 <213> Pseudomonas sp. HJ-2

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<400> 18
 Met Asp Asn Gly His Thr Phe Ala His Tyr Trp Ser Gly Gln Ala Pro
 1 5 10 15
 Phe Ile Ala Ser Phe Val Leu Gln Gln Leu Arg Leu Tyr Val Ala Gln
 20 25 30
 Asn Thr Trp Phe Ser Gly His Asp Gln Ser Gln Trp Phe Asp Val Pro
 35 40 45
 Val Glu Ala Leu Glu Gln Leu Gln Ala Asp Tyr Gln Gln Gln Trp Ala
 50 55 60
 Glu Leu Gly Gln Gln Leu Leu Ser Cys Gln Pro Phe Ala Phe Ser Asp
 65 70 75 80
 Arg Arg Phe Ala Ser Gly Asn Trp Ser Glu Pro Leu Phe Gly Ser Leu
 85 90 95
 Ala Ala Phe Tyr Leu Leu Asn Ser Gly Phe Leu Leu Lys Leu Leu Glu
 100 105 110
 Leu Leu Pro Ile Asp Glu Gln Lys Pro Arg Gln Arg Leu Arg Tyr Leu
 115 120 125
 Ile Glu Gln Ala Ile Ala Ala Ser Ala Pro Ser Asn Phe Leu Leu Ser
 130 135 140
 Asn Pro Asp Ala Leu Gln Arg Leu Val Glu Thr Gln Gly Ala Ser Leu
 145 150 155 160
 Leu Ser Gly Leu Leu His Leu Ala Ser Asp Leu Gln Ala Gly Lys Leu
 165 170 175
 Arg Gln Cys Asp Leu Gly Asp Phe Glu Val Gly Val Asn Leu Ala Thr
 180 185 190
 Thr Pro Gly Ala Val Val Leu Glu Thr Pro Leu Phe Gln Leu Ile Gln
 195 200 205
 Tyr Ser Pro Leu Ser Glu Thr Gln Tyr Gln Arg Pro Ile Phe Met Val
 210 215 220
 Pro Pro Trp Ile Asn Lys Tyr Tyr Ile Leu Asp Leu Gly Pro Glu Asn
 225 230 235 240
 Ser Leu Ile Arg His Leu Leu Glu Arg Gly His Gln Val Phe Leu Met
 245 250 255
 Ser Trp Arg Asn Phe Thr Gln Glu Gln Ala Asp Ile Thr Trp Glu Gln
 260 265 270
 Ile Ile Gln Asp Gly Val Ile Ser Ala Leu Arg Thr Thr Arg Ala Ile
 275 280 285
 Ser Gly Glu Arg His Leu Asn Cys Leu Gly Phe Cys Ile Gly Gly Thr
 290 295 300
 Met Leu Ser Cys Ala Leu Ala Val Leu Ala Ala Arg Gly Asp Gln Asp
 305 310 315 320
 Ile Ala Ser Leu Ser Leu Phe Ala Thr Phe Leu Asp Tyr Leu Asp Thr
 325 330 335

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Gly Pro Ile Ser Val Phe Val Asp Glu Gln Leu Val Ala Tyr Arg Glu
 340 345 350
 Arg Thr Ile Gly Gly His Gly Gly Lys Cys Gly Leu Phe Arg Gly Glu
 355 360 365
 Asp Met Gly Asn Thr Phe Ser Leu Leu Arg Pro Asn Glu Leu Trp Trp
 370 375 380
 Asn Tyr Asn Val Asp Lys Tyr Leu Lys Gly Gln Lys Pro Leu Ala Leu
 385 390 395 400
 Gly Leu Leu Phe Trp Asn Asn Asp Ser Thr Asn Leu Pro Gly Pro Leu
 405 410 415
 Tyr Cys Trp Tyr Leu Arg His Thr Tyr Leu Gln Asn Asp Leu Lys Ser
 420 425 430
 Gly Glu Leu Asp Leu Cys Gly Val Lys Leu Asp Leu Arg Ala Ile Asp
 435 440 445
 Ala Pro Ala Tyr Ile Leu Gly Thr His Asp Asp His Ile Val Pro Trp
 450 455 460
 Arg Ser Ala Tyr Ala Ser Thr Glu Leu Leu Gly Gly Pro Lys Arg Phe
 465 470 475 480
 Val Leu Gly Ala Ser Gly His Ile Ala Gly Val Ile Asn Pro Pro Asp
 485 490 495
 Arg Asn Lys Arg His Tyr Trp Val Asn Glu His Ile Ala Pro Val Ala
 500 505 510
 Asp Asp Trp Leu Gln Gly Ala Gln Gln His Ser Gly Ser Trp Trp Gly
 515 520 525
 Asp Trp Phe Ala Trp Leu Thr Gly Tyr Ala Gly Pro Arg Lys Pro Ala
 530 535 540
 Ile Thr Met Leu Gly Ser Ala Glu Tyr Pro Pro Leu Glu His Ala Pro
 545 550 555 560
 Gly Arg Tyr Val Lys Leu
 565